HOW UNCLE SAM PLANS TO REDUCE THE COST OF LIVING

Inland Waterways Will Be Used to Cheapen Freight Rates. Our Mighty Water Supply. What the Rainfall Means. The Run-off, the Cut-off and the Fly-off—Where the Rains Go—Our Underground Reservoir—Ship Canals for Everywhere—What Railway Freights Cost the Consumer—One Hundred and Fifty Dollars Per Year Per Family—Some River and Harbor Plans Now Under Way.

BY FRANK G. CARPENTER.

Washington, D. C.

UNCLE SAM is waking up to the value of his waterways. The presidential platforms of both parties during the coming campaign will have planks providing for their conservation, and the questions of irrigation, drainage and a national canal system will be canvassed from the Atlantic to the Pacific and from Canada to Mexico. The matter is already before Congress. There has been introduced into the Senate a bill providing that five hundred million dollars be spent within the next ten years upon the control of our water resources, and the scientists tell me that if this is done it will result in a saving to us of one thousand million dollars per annum. The proposed expenditure is to be made at the rate of fifty million dollars per year. It will cost us each year about sixty-two cents per capita, and the saving will be at the rate of twelve dollars per capita, or twenty times the amount of the expenditure. This means 2,000 per cent. profit, which, even in these times of multi-millionaires and billion-dollar trusts, is a fairly good investment. The man at the head of the movement in the Senate is Francis G. Newlands, who has for years ranked as the leader of our irrigation and reclamation projects, and who, as Dr. W. J. McGee, the secretary of the inland waterways commission, says, is a quarter of a century in advance of the average statesman on such subjects.

Dr. McGee, the chief authority on United States waterways.

This turnip, from the Great Northwest, weighs twenty pounds. It took ten tons of water to make it, or all twenty horses could haul. (See Carpenter talk with McGee).

Billions in Water.

But before I take up this great project for the regulation of our rivers I want to give you some idea of the water supply of the United States, and the part it has in the welfare of every man, woman and child of us. The man who knows more about this than any other in the country is Dr. W. J. McGee, and it is from him that the greater part of my information comes. During the past week we have been talking about the rainfall of the United States and where it goes. We have discussed our mighty rivers and the schemes for their improvement, and Dr. McGee has laid before me the plans for great series of ship canals which, when completed, will result in a saving of hundreds of millions of dollars in freight transportation every year.

Our great irrigation sections of the West, where an acre or so will support a family, give some idea of the value of water in the production of food. Dr. McGee tells me that every pound of plant food we use has required on the average one thousand pounds of water to make it. So that if you eat four pounds of vegetables today it would just take two tons of water, or all that four horses could haul, to make that food. It takes even more water to make meat and eggs, for the food of the animals comes from the soil, and in addition they drink many times their own weight every year. Every pound of bread is equivalent to two tons of water used by the growing grain, and a pound of beef is equal to from thirty to fifty tons of water, which the animal has consumed directly or indirectly through its food. I can't tell exactly how much water each of you consumes in this way every year, but if you should eat two hundred pounds of bread and two hundred pounds of meat you will have consumed altogether more than four-thousand tons of water in one shape or other, and this is without counting that which you use for drinking or bathing.

Moreover, as we have more or less food, we have more or less water, and so, after all, it is water which regulates the size of our bread basket. Dr. McGee says that we have an annual water supply big enough to make food for a billion people, and he estimates that at the current rate of increase we will have that population in something like 300 years. This supposes that all the water be properly cared for, and that is what Congress is now asked to do.

Uncle Sam's Water Supply.

Now let us look at the water supply of the United States!

Dr. Willis Moore, of the Weather Bureau, has estimated that our annual rainfall averages about thirty inches the United States over. The best way to measure this is by acre feet, that is, by covering a certain number of acres with water one foot in depth. The yearly supply measured that way would cover five thousand million acres, in area is equal to 200 States the size of Ohio, Virginia or Kentucky, or in volume to ten Mississippi Rivers running day and night all the year through. All this comes from the rain or snow which falls in one year.

The distribution of this supply, however, is very uneven. Draw a line north and south across the United States so that it will bisect Des Moines, Iowa, and more than half of all the rain that falls will be found east of that line. The acerage precipitation over that tract is forty-eight inches per annum. It is the humid region of our country. From that line about 500 miles westward is another territory which may be called semi-humid, where the rainfall is about thirty inches, and the whole remainder, consisting of about two-fifths of our country, includes the arid lands, where the average precipitation is only twelve inches. The other tract is the region of the deserts, the mountains and of the reclamation projects. It is a country of a few well watered spots, but also of extensive tracts which are bone dry.

Where the Rains Go.

Nevertheless, we have, all told, an annual rainfall equal to ten Mississippi Rivers. We have measured the quantity and know that it falls. Where does it go? I shall ask these high-browed scientists to tell you the story. Here again McGee is the best authority. His mind is so sharp that it can split a raindrop, and his vision so clear that he can follow the drop to the skies or to the bowels of old Mother Earth. He divids the rainfall into three—the run-off, the fly-off and the cut-off. One-third of all the water that falls, says he, flows into the sea through the rivers and the smaller streams. This is the run-off. A smaller amount soaks into the soil and satuates the rocks and finds its way into the sea by leaking out into the streams. This is the cut-off. The remainder, which is by far the most of the supply, evaporates and goes into the air to fall again as rain. This is the fly-off. This is the water which, in connection with that from the oceans, loads the clouds and drops again upon the land.

The fly-off is so large that if you could freeze it into cubes a mile square it would suffice to build an ice wall a mile high and a mile wide al the way from New York to Detroit. The run-off, is so frozen, would make such a wall 500 miles long, and the cut-off, or the water which sinks into the soil, would make one long enough to reach from Philadelphia to Boston.

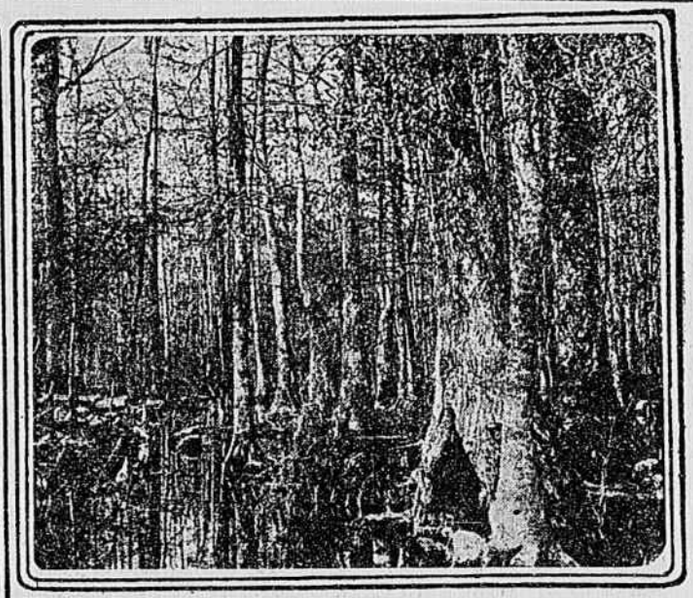
Our Underground Waters.

In addition to the water which falls every year, we have another great supply underground, which has accumulater and is fed by rain and snow which fall from time to time. This water is always moving, but the amount is so great that it is equal to the entire rainfall of the United States for seven years, or to the run-off for twenty years. There is so much of it under the surface of the earth that it has been estimated that if it were equally distributed it would wrap around our globe an envelope of water ninety-six feet in thickness. McGee estimates that the amount of water which lies under the United States to a depth of 100 feet would, if it could be raised to the surface and held there, cover our whole country to a depth of seventeen feet. He estimates that it contains 11,000 cubic miles of water, or enough to build a rampart of ice two miles wide and five miles high through the Mississippi Valley from St. Paul to St. Louis and on to New Orleans.

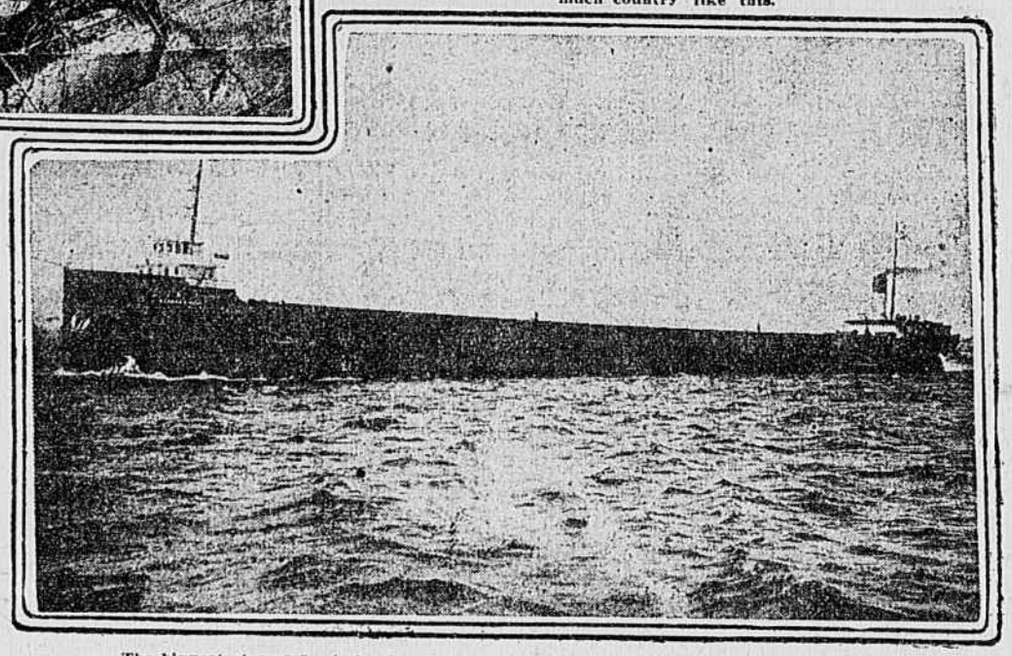
This underground water runs from the surface, as in the case of swamps and marshes, to hundreds of feet, and even a thousand feet, below the surface. All the cracks and openings of the rocks are filled with water, and there are porous rocks which take up water like a sponge. In these about one-fifth of the whole volume is supposed to be stored. It is this water which feeds our artesian wells and other wells. It is this that feeds the plants in great degree, and 't is that furnishes the larger part of our table supply. In some places this water is pumped up and used for irrigation and in others it flows on being tapped, and altogether it is very valuable. Congress will be asked not only to conserve the forests that they may act as a sponge to ret in this underground water, but to hold it back in other ways.

Regulating the Rivers.

These schemes of Uncle Sam for controlling the water supply embrace the whole United States. They provide for the regulation of the flow of the rivers and of standardizing them. They provide for great reservoirs along the Mississippi, Ohio and Missouri. They treat of drainage and irrigation and of the development of our water power. They also clude the making, by means of canals, of a great system of interior water transportation, which shall supplement our railways and reduce freight rates to the merchant and the consumer. According to Dr. McGee, the scheme means an annual saving in transportation charges alone of more than three-quarters of a million dollars for every day of the year, an annual saving in flood damages of $150,000,000 per annum, and a saving in the washing away of our soils of one-half billion dollars every year. In addition to this, there will be an enormous profit from the water powers created, and altogether a mighty decresse in the cost of living should follow.



The great Atlantic barge canal from New York to Florida will go through much country like this.



The biggest steamers of the Great Lakes will float down to the Gulf of Mexico.

Our Inland Waterways.

The plans for this development have been worked out in connection with the Commission of Inland Waterways and with the Bureau of Soils of the Agricultural Department. Senator Newlands and the Committee on Rivers and Harbors have had the matter under discussion, and in time we will have a great waterway project which will add not only to the cheapening of all classes of freight and to the increase of our industries, but will be of enormous military advantage in the defense of our country.

As far as waterways are concerned, there are few countries which compare with the United States. We have a coast line which, if stretched out, would reach twice around the world and still leave 14,000 miles to spare. The United States shore line of the Great Lakes is half again as long as from New York to San Francisco, and the navigable waters of our rivers, if they could be joined in one line, would form a continuous stream around the globe, with a thousand miles to spare. The Mississippi system alone has 2,500 miles of waterways which have a draft of six feet, and our whole country is so cut up by streams that a great system of canals and rivers could be made by which the heaviest of our freight could be carried by water.

Some Mighty Improvements.

The plans of the commission, as shown to me by Dr. McGee, provide for a deep waterway from the Gulf of Mexico to the Great Lakes, and a deep and continuous Atlantic interior passage from New England to Florida and the Gulf of Mexico. Dr. McGee says that canals could be built connecting the lower Mississippi with the Rio Grande at Brownsville, Tex., and another system in the northwest by which freight could be carried from the Columbia River to Puget Sound. The projects embrace the deepening of the Mississippi and the Chicago drainage canal and Illinois River so that our men-of-war could go from the Gulf of Mexico right into the Great Lakes. All sorts of ocean transportation could go the same way.

Another provision is for the improvement of the Ohio. This, it is estimated, would result in a saving in freight of something like $100,000,000 a year. A third is the deepening and improving of the Missouri, so that boats drawing ten feet could go from the Mississippi at the Gulf as far as Great Falls, Mont., a distance of 3,000 miles.

Dr. McGee says that the Tennessee River might be improved so as to give slack water navigation for ten-foot barges, and that barge waterways of equal depth might be made all along the Atlantic coast from New York to Florida. There are many natural waterways there, and the land is such that canals could be easily dug.

What the Consumer Pays.

Have you any idea how much money you have to pay to the railroads? It comes out of you in the price of the goods you buy, in your own traveling, and in the cost to the general business of the country, which is based upon your consumption. The sum we annually pay for transportation is about one-third as much as the value of all the products of our farms. It equals $2,700,000,000, making a tax upon the soil equal to $1.25 per acre for the entire mainland of the United States. Taking the improved lands, it is equal to a tax of $5.25 upon every acre, and, comparing it with our population, it is equal to $30 per year for every man, woman and child in the Union.

Thirty dollars a year is $2.50 a month. Suppose you should receive a bill every month of $2.50 from the railroads, or of $12.50 per month for your family of five. Wouldn't it jar you? Well, that it what you pay.

During the year it costs on the average every family $150. Now the average cost of living the United States over is not more than $450 per family, so that one-third of our living cost goes to the railroads.

Water Freights vs. the Railroads.

These are figures given me by Dr. McGee. He tells me, moreover, that the cost of water transportation is, on the average, only about one-fourth that of rail transportation, and that the greater part of the heavy freight might be taken by water, leaving to the railroads the lighter freight, for which higher prices are paid, and which is by far the more profitable. As it is now, the railroads have more than they can carry, and it is believed that this system of canals would so increase the traffic that the railroads would still have all and more than they could do. Their business would pay better and the dividends would be correspondingly increased. It is the idea that the railways and waterways might co-operate here as they do in Europe, and that togeth they would work not only to the advantage of the companies owning them, but to that of the consumer. Both would be under an interstate commission, as their business is between the States.

There are some railway men who look upon such a combination as one of the necessities of the future. Among those who have the broadest views is James J. Hill. He says that railroad transportation cannot be performed at much less than one-half cent a ton per mile. The rates on iron ore on the Great Lakes are about 1 mill per ton per mile, while the same ore carried by railroads costs ten times as much.

Uncle Sam's River and Harbor Projects.

As it is now, the government is spending tens of millions of dollars a year on rivers and harbors, and a great part of this is political graft. The money goes to the improvement of creeks and other waterways which have no commercial importance, and it is really an appropriation bill for the benefit of the representatives in their individual districts. The amount appropriated last year was a little more than $41,000,000.

Among the important works under way are the improvement of the Ohio and Mississippi, the deepening of the channels in the Delaware River at Philadelphia, in the Hudson River at Troy, and at Mobile and at Oakland, Cal. A considerable work has been done at Baltimore and New York, as well as at Galveston, where the entrance channel has been deepened to thirty-four feet.

The government is making surveys for a deepwater channel from Lockport, Ill., at the end of the Chicago Drainage Canal to the Mississippi River at Cairo, and the State of New York has about half completed the making of a new barge canal twelve feet deep from Lake Erie at Buffalo to the Hudson River. The route is from Buffalo to Rome along the line of the old Erie Canal, and from Rome to the Hudson it is a canalization of the Mohawk River. The State is authorized to spend $101,000,000 on the project, and it is probable that the whole amount will be needed.